

Tyco 17689 (AT 20958-49)
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Hempel et al.

Serial No.: 10/067,435

Filed: February 4, 2002

For: COMPACT MULTI-ELEMENT
CASCADE CIRCULATOR

Art Unit: 2817

Examiner: Bettendorf, J.

**CERTIFICATE OF MAILING BY EXPRESS MAIL TO
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Date of Mailing: **April 21, 2003**

I certify that the documents listed below:

- Amendment Transmittal form (3 pgs.), in duplicate
- Amendment, including Appendix A – Submission of Marked Up Claims, in response to Office Action dated February 24, 2003 (7 pgs.)
- Return Post Card

are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. §1.10 on the date indicated above in an envelope addressed to: Box: Non-Fee Amendment, Commissioner for Patents, Washington, D.C. 20231-0001.



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PATENT
Tyco 17689

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Hempel, et al. :
Serial No.: 10/067,435 : Art Unit: 2817
Filed: February 24, 2002 : Examiner: Bettendorf, J.
For: COMPACT MULTI-ELEMENT :
CASCADE CIRUCALTOR :

Box: Non-Fee Amendment
Commissioner for Patents
Washington, D.C. 20231

TRANSMITTAL

1. Transmitted herewith is:

Amendment, including Appendix A – Submission of Marked Up Claims, in response to the Office Action dated February 24, 2003 (7 pgs.); Certificate of Express Mail (1 pg.); Return Post Card

STATUS

2. Applicant

☒ Claims small entity status.
☐ is other than a small entity.

CERTIFICATE OF MAILING/TRANSMISSION

I hereby certify that this correspondence is, on the date shown below, being:

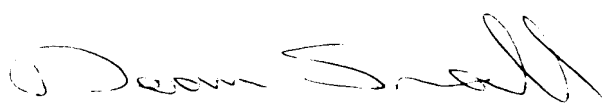
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Date: April 21, 2003

FACSIMILE

Transmitted by facsimile to the Patent and Trademark Office



Dean D. Small
Reg. No. 34,734

EXTENSION OF TERM

3. The proceedings herein are for a patent application and the provisions of 37 C.F.R. 1.136 apply.

(complete (a) or (b), as applicable)

- (a) _____ Applicant petitions for an extension of time under 37 C.F.R. 1.136
(Fees: 37 C.F.R. 1.17(a)-(d) for the total number of months checked below:)

Extension for response within:	Other than small entity Fee	Small entity Fee (if applicable)
_____ first month	\$ 110.00	\$ 55.00
_____ Second month	\$ 410.00	\$ 205.00
_____ Third month	\$ 930.00	\$ 465.00
_____ Fourth month	\$1,450.00	\$ 725.00
_____ fifth month	\$1,970.00	\$ 985.00

Fee: \$ _____

If an additional extension of time is required, please consider this a petition therefor.

(Check and complete the next item, if applicable)

_____ An extension of _____ months has already been secured. The fee paid therefor \$_____ Is deducted from the total fee due for the total months of extension now requested.

Extension fee due with this request \$

OR

- (b) ☒ Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.

FEE FOR CLAIMS

4. The fee for claims (37 C.F.R. 1.16(b)-(d)) has been calculated as shown below:

(Col. 1)		(Col. 2)	(Col. 3)	SMALL ENTITY		OTHER THAN SMALL ENTITY
CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NO. PREVIOUSLY PAID FOR	PRESENT EXTRA	ADDITIONAL RATE FEE	OR	ADDITIONAL RATE FEE
TOTAL	MINUS			x \$93 = \$		x \$18 = \$
INDEP.	MINUS			x \$42 = \$		x \$84 = \$
				+ \$130 = \$		+ \$280 = \$
				TOTAL ADDITIONAL FEE \$	OR	TOTAL ADDITIONAL FEE \$

(a) ☒ No additional fee for claims is required.

OR

(b) _____ Total additional fee for claims required \$

FEE PAYMENT

5. _____ Attached is a check in the sum of \$_____
- _____ Charge Deposit Account No. 01-2384 the sum of \$
- _____ A duplicate of this transmittal is attached.

FEE DEFICIENCY

6. ☒ If any additional extension and/or fee is required, charge Deposit Account No. 01-2384.

AND/OR

- ☒ If any additional fee for claims is required, charge Deposit Account No. 01-2384.

7. _____ Other:



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APR 11 2003

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AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

In response to the Office Action dated February 24, 2003, please amend the above-identified patent application as follows:

IN THE CLAIMS

1. (Once Amended) A radio frequency/microwave junction-type circulator, comprising:

a plurality of signal ports;

a plurality of junctions connected in cascade and configured to provide a plurality of transmission paths between the signal ports, each junction including a conductor element patterned to correspond to at least a portion of the plurality of transmission paths;

a ferrite component configured to overlay the plurality of junctions;

a permanent magnet arranged in relation to the ferrite component so as to generate a magnetic field in the ferrite component, thereby causing non-reciprocal operation of the plurality of transmission paths between the signal ports; and

at least a first pole piece disposed between the permanent magnet and the ferrite component.